

Abstracts

A53

hypertensive patients. **METHODS:** The study cohort is composed of 152 hypertension patients, a subset of all those 498 enrolled to date in the Baltimore Partnership Programs to Reduce Cardiovascular disparities study, and who have one year follow-up. The study follows a 2×2 factorial nested case-control design: patients and their physicians were randomly assigned to either intervention or control group, where only the intervention group received patient/physician education. Blood pressure (BP) was measured at one year follow up. We used multiple regressions to assess the effect of the interventions on systolic blood pressure (SBP) change, from baseline to one year follow-up. The model is adjusted for sociodemographics, patient knowledge score in hypertension (per "High Blood Pressure Survey", Matins D, 2001) and concomitant diabetes. **RESULTS:** Most patients are Black (86.2), female (67.1%), and under 65 years of age (71.7%). Mean pre- and post BP are 145/87 mmHg and 136/80 mmHg, respectively. SBP reduction is significantly larger in patients under 65 ($p = 0.04$), and marginally significant in those who received intervention ($p = 0.06$) and in those whose physicians participated in the education sessions ($p = 0.12$). **CONCLUSION:** In this patient sample, interventions at both patient and physician level are effective at reducing blood pressure.

PCV56

THE COST-EFFECTIVENESS LANDSCAPE OF GENETIC TESTING WITH WARFARIN THERAPY

Meckley LM¹, Austin MJF², Garrison LP¹, Veenstra DL¹

¹University of Washington, Seattle, WA, USA, ²F. Hoffmann-La Roche AG, Basel, Switzerland

OBJECTIVES: Warfarin has highly variable dosing requirements that are influenced by the CYP2C9 and VKORC1 genes. A recent study suggested potential cost savings over \$1 billion annually to the US health care system if warfarin dose was guided by genetic testing. The purpose of this study was to evaluate the potential cost-effectiveness of warfarin pharmacogenomic testing over a range of plausible scenarios. **METHODS:** A decision analytic model was developed to evaluate the clinical, patient, and economic outcomes of adding genetic testing to anticoagulation clinic standard of care for a hypothetical cohort of patients with atrial fibrillation. Epidemiological data for the risk of bleeds and the effect of genetic variants were obtained from a systematic evaluation of the literature. A lifetime horizon and payer perspective was utilized. In the testing arm, we assumed that the risk of bleeding in CYP2C9 and VKORC1 variant patients decreased by 50% and 25%, respectively, toward the risk of wild type patients. Utility and cost data were obtained from the literature, and the cost of the screening test was estimated based on currently available pharmacogenomic tests (\$200). One-way sensitivity analyses were performed to explore the range of plausible results. **RESULTS:** The base-case incremental cost effectiveness ratio (ICER) was \$91,301/quality adjusted life year (QALY). Varying the cost of genotyping between \$100 and \$550 resulted in ICERs varying between \$4,581/QALY and \$403,822/QALY. Varying the effectiveness for genotyping CYP2C9 between 25% and 75% resulted in ICERs between \$45,711 and \$339,781/QALY. Varying the effectiveness for genotyping VKORC1 between 0%–50% resulted in an ICER between \$89,664 and \$97,482. **CONCLUSION:** Genotyping patients for CYP2C9 and VKORC1 are likely to increase costs, but have the potential to be cost-effective depending on the effectiveness of dose reductions and the cost of the test.

HOW INFLUENTIAL ARE CLINICAL GUIDELINES FOR THE EVALUATION OF ACUTE CARDIAC SYMPTOMS? METHODOLOGY FOR THE INVESTIGATION OF NATIONAL CORONARY DISEASE IDENTIFICATION (INCIDENT)

Li J¹, Reaven NL², Funk SE², Schabert VF², Lovett JE², DeMaria AN³

¹Harvard Medical School, Boston, MA, USA, ²Strategic Health Resources, La Canada, CA, USA, ³University of California, San Diego, CA, USA

OBJECTIVES: Because coronary artery disease is the leading cause of death in the developed world, widespread implementation of evidence-based guidelines for the diagnosis of such disease is an ongoing priority for medical professional societies. Using a very large database comprising 2% of the U.S. adult population, we analyzed national patterns of cardiac diagnostic testing. Our goal was to assess divergence from current clinical guidelines in actual practice and evaluate the effects on costs and outcomes. **METHODS:** Our sample of commercial and Medicare enrollees numbered 4,355,625 patients. Entry criteria included age over 44 years, continuous enrollment from 2001–2003 excepting death, and a cardiac test with a diagnosis of coronary artery disease, heart failure, or a related cardiac symptom in 2001. Exclusion criteria included any cardiac diagnostic procedure or intervention in the 6 months preceding the first cardiac test. We measured the sequence of diagnostic procedures, interventions, cardiac events and treatment costs for each patient. **RESULTS:** 42,223 patients met entry and exclusion criteria and comprised our study group. 50% (21,075/42,223) were male and 48% (20,208/42,223) were older than 64 years. The prevalence of diabetes and hypertension was 32% (13,352/42,223) and 69% (28,968/42,223). Most patients (80%) completed an initial diagnostic pathway within 8 months of the first test. Patients had an average of 3.2 cardiac diagnostic tests (95% confidence interval 3.2–3.2, range 1–35) within 8 months of their initial test. 39% (16,354/42,223) had 2 or fewer tests within 5 days and no further tests or events by 8 months. Events evaluated included coronary artery bypass grafting (4% [1,793/42,223]), percutaneous coronary intervention (7% [3,138/42,223]), death (7% [2,964/42,223]), and hospital admission for major adverse cardiac events (11% [4,743/42,223]). **CONCLUSION:** Evaluation of diagnostic tests and their sequences provide objective evidence to assess the nature of divergence from expert guidelines and to calculate the costs of cardiac disease evaluation.

PCV58

HOSPITAL POLICIES FOR TREATMENT OF ACUTE DECOMPENSATED HEART FAILURE

Vats V¹, DiDomenico R¹, Wojtynek JE², Theobald JC², Schumock GT¹

¹University of Illinois at Chicago, Chicago, IL, USA, ²Consortia Inc, Schaumburg, IL, USA

OBJECTIVES: To assess the formulary status of currently used drugs, therapeutic guidelines and perceptions about the appropriateness of treatment of ADHF in community hospitals. **METHODS:** A Web-based survey of pharmacy directors at community hospitals that were part of a national group purchasing organization. **RESULTS:** One-hundred seven hospitals participated in the survey (response rate 47.1%). Diuretics like furosemide and bumetanide were more commonly included (100% and 94.4%, respectively) in hospital formularies than torsemide (69.2%). Dopamine and dobutamine were more common (94.4% each) on the formulary than milrinone (68.2%). Nitroprusside and nitroglycerin were listed on the formulary of more than 90% of institutions, while nesiritide was listed on the formulary in only 48.6% of hospitals and placed

on “restricted” status in 36.4% of hospitals. Guidelines for care of patients with ADHF were used in the emergency department (ED), inpatient care units, and outpatient clinics in 18.6%, 43.0% and 8.5% of hospitals respectively. Overall, ADHF care including general treatment as well as specific use of nesiritide was deemed to be appropriate in the majority of patients but nearly twice as many respondents perceived the management of ADHF and specific use of nesiritide was inappropriate in ED compared to the inpatient treatment. Only 41.1% of the respondents reported following Braunwald recommendations for the use of nesiritide. **CONCLUSION:** A sizable percentage of responding community hospitals did not have guidelines for treatment of ADHF despite existence of such in the literature. There are potential opportunities for improvement in the general treatment of ADHF as well as use of nesiritide in ADHF especially in the ED or observation unit versus inpatient.

CARDIOVASCULAR STUDIES—Methods & Concepts

PCV59

EFFECTIVENESS OF OUTPATIENT CLOPIDOGREL TREATMENT IN PREVENTING CARDIOVASCULAR EVENTS IN PATIENTS UNDERGOING STENTING FOR ACS: A RETROSPECTIVE CLAIMS DATABASE ANALYSIS

Riedel AA¹, Chastek BJ¹, Wygant G², Hauch O²¹3Innovus, Eden Prairie, MN, USA, ²AstraZeneca LP, Wilmington, DE, USA

OBJECTIVES: To evaluate outcomes of clopidogrel use following hospitalization for ACS in patients who had stent placement during the index hospitalization. **METHODS:** Retrospective administrative claims data from a geographically diverse US managed care organization (MCO) were used to identify patients ≥ 18 years of age, hospitalized with ACS diagnoses, treated with stent placement, and filling clopidogrel prescriptions within 7 days of discharge between 2000 and 2004 using ICD-9, CPT-4, and NDC codes. Exclusion criteria included ACS, anticoagulant or antiplatelet therapy 12 months prior to the index event, and use of anticoagulant or antiplatelet agents except aspirin and clopidogrel in the follow-up period. Clopidogrel exposure and non-exposure time following the index hospitalization were determined based on prescription data. Outcomes: Hospitalization for ischemic events (IE) and hospitalization or ER visits for bleeding episodes (BE) were determined using ICD-9 codes. Cox proportional-hazard regression controlled for clopidogrel exposure, age, gender, diabetes, hypertension, percutaneous transluminal coronary angioplasty (PTCA), and coronary artery bypass graft (CABG). **RESULTS:** A total of 9129 subjects, 79.5% male, mean age 54.6 ± 9 years, were identified. Mean follow-up time was 514 days, mean clopidogrel exposure time was 210 days, and mean non-exposure time was 303 days. IE rate was 8.7% during exposure and 9.1% during non-exposure; BE rates were 0.8% and 0.7%, respectively. Hazard ratio (HR) for IE during clopidogrel exposure was 0.87 [95% CI, 0.78–0.96; $P = 0.007$]. Other significant HRs were male gender (0.79; $P < 0.001$); diabetes (1.32; $P < 0.001$); and hypertension (1.13; $P < 0.017$). HR for BE during clopidogrel exposure was 1.46 [95% CI, 1.09–1.97; $P = 0.012$]; other significant HRs were hypertension (1.35; $P = 0.041$) and age (1.04; $P < 0.001$). **CONCLUSION:** This confirms clinical study findings that clopidogrel use reduces subsequent IE in ACS patients treated with stent placement, with a bleeding risk comparable to that observed in the CURE study. Longer treatment with clopidogrel could potentially reduce additional IE.

PCV60

THE CLIN-O-GRAM: A GRAPHICAL TOOL DESCRIBING DRUG USE PRIOR TO CLINICAL OUTCOMES

Gause D, Preblich R, Levy D, Raghavan K

Novartis Pharmaceuticals, East Hanover, NJ, USA

OBJECTIVES: To illustrate a graphical approach for summarizing patterns of drug use and resource utilization surrounding clinical outcomes. **METHODS:** Partitioned bar charts, displayed on horizontal axis at times of clinical measurements, display percentages of patients taking different drug classes prior to each clinical measure. Superimposed on charts are plots of average clinical values, age, and duration/visits since diagnosis. Bootstrapping is used to provide confidence intervals for clinical and utilization estimates. **RESULTS:** The clin-o-gram will be illustrated using demographic, prescription, and longitudinal blood pressure measurements on hypertensive patients from the General Electric Electronic Medical Record captured in the Centricity Physician Office system. The descriptive clin-o-gram plots provide clues for subsequent inferential analysis including marginal mean and pooled logistic regression over visits. **CONCLUSION:** With increased availability of clinical outcomes comes need to visualize patterns of drug use relative to changes in the outcomes. Statistical models of changing clinical measures as function of changing drug utilization need to be preceded by graphical summaries.

PCV61

DIFFERENCES IN ANTIBIOTICS PRESCRIBED BY PHYSICIANS WITH HIGH AND LOW INFECTION RATES APPLIED TO PATIENTS UNDERGOING CARDIOVASCULAR SURGERY

Cerrito PB¹, Cerrito JC²¹University of Louisville, Louisville, KY, USA, ²Kroger Pharmacy, Louisville, KY, USA

OBJECTIVES: To investigate patterns in antibiotic prescribing for patients undergoing cardiovascular surgery to determine whether there are differences between physicians with high rates of infection compared to physicians with low rates of infection. **METHODS:** All cardiovascular surgeries from a mid-sized southern hospital over a 2-year period were examined (approximately 2100 surgeries). A cross-tabulation between physician and patient infections was performed to identify those physicians with a low (under 6%) and a high (over 6%) infection rates. Information from the pharmacy database relating to all patients in the cardiovascular database was extracted, and all antibiotic prescriptions were identified. The data mining techniques of association rules and kernel density estimation were used to investigate prescribing patterns between the two groups of physicians. **RESULTS:** While the surgeons did not seem to differ in their use of cephalosporins, they differed considerable in their use of fluoroquinolones. Low infection physicians made more frequent use of Cipro while high infection physicians tended to make more use of Levaquin. In addition, some patients received up to eight different antibiotics as inpatients before, during, and after cardiovascular surgery. **CONCLUSION:** Data mining techniques that have been developed for business applications can be used to investigate physician decisions and their impact on patient outcomes. Variability in physician decisions in the absence of treatment guidelines can be investigated observationally, and meaningful results obtained. In this application, there are differences in antibiotic use related to infection rates. These differences should be examined and a consensus reached for prescribing habits.